

What is claimed is:

1. A method of diagnosing network devices, comprising:
receiving an error notification in a network device;
creating a diagnostic report relating to the network device; and
5 automatically transmitting the diagnostic report through a firewall to a service center.
2. The method of claim 1, wherein creating the diagnostic report includes generating the diagnostic report in an electronic format.
- 10 3. The method of claim 2, wherein generating the electronic format of the diagnostic report includes creating the diagnostic report in at least one of Extensible Markup Language (XML), Hypertext Markup Language (HTML), and Comma Delimited Format.
- 15 4. The method of claim 2, wherein transmitting the diagnostic report includes using a firewall penetrating protocol.
- 20 5. The method of claim 2, wherein transmitting the diagnostic report includes using at least one of Simple Mail Transfer Protocol (SMTP), and Hypertext Transfer Protocol (HTTP).
- 25 6. The method of claim 5, wherein transmitting the diagnostic report is executed by a communication module in the networked device.
7. The method of claim 2, further includes:
receiving the diagnostic report at the service center in the electronic
format; and
reading the diagnostic report programmatically at the service center.
- 30 8. The method of claim 7, including determining a suggested course of action based on the diagnostic report at the service center.

9. The method of claim 8, including communicating the suggested course of action from the service center to a customer representative.

10. The method of claim 1, wherein creating the diagnostic report
5 includes reading a configuration status file of the network device.

11. The method of claim 1, wherein receiving the error notification includes at least one of a user selection on an interface of the networked device, and an automatic signal generated by a machine error in the networked device.
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12. A network device configured to transmit a diagnostic report, the network device comprising:

an error notification generator configured to generate an error notification upon detection of a malfunction in the network device;

15 a diagnostic module configured to generate a diagnostic report in response to the error notification; and

a communication module configured to automatically execute transmission of the diagnostic report to a service center upon generation of the diagnostic report.
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13. The network device of claim 12, wherein the diagnostic module is configured to produce the diagnostic report in an electronic format.

14. The network device of claim 13, wherein the electronic format of the
25 diagnostic report includes at least one of Extensible Markup Language (XML), Hypertext Markup Language (HTML), and Comma Delimited Format.

15. The networked device of claim 14, wherein the communications module transmits the diagnostic report through a network firewall to a location on an external network.

5 16. The networked device of claim 15, wherein the communication module uses at least one of Simple Mail Transfer Protocol (SMTP), and Hypertext Transfer Protocol (HTTP) to transmit the diagnostic report through the firewall.

10 17. The networked device of claim 12, wherein the error notification generator includes at least one of a user selection on an interface of the network device, and an automatic signal generated by an error in the network device detected by a sensor.

15 18. A method of providing help to a user of a network device comprising:

generating an error notification in response to a detected malfunction in the network device;

20 generating a diagnostic report relating to the malfunction in the network device;

automatically transmitting the diagnostic report over a network to a service center in response to the error notification;

receiving the diagnostic report relating to the network device at the service center;

25 determining a suggested course of action based on the diagnostic report; and

communicating the suggested course of action to the user.

19. The method of claim 18, wherein receiving the diagnostic report includes receiving the diagnostic report in an electronic format.

20. The method of claim 19, further including programmatically reading
5 the diagnostic report received from the network device in the electronic format.

21. The method of claim 20, wherein determining the suggested course of action occurs based on the programmatically read diagnostic report.

10 22. The method of claim 20, wherein transmitting the diagnostic report includes transmitting the diagnostic report through a firewall to an external network.

23. The method of claim 18, wherein communicating the suggested
15 course of action to the customer representative includes verbal communication.

24. The method of claim 23, wherein communicating the suggested course of action to the customer representative includes verbal communication over a telephonic network.

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25. A user service system comprising:
a service center;

a network device having a diagnostic module configured to produce a diagnostic report in response to an error notification received from an error
25 notification generator, and a communications module configured to automatically transmit the diagnostic report from the network device to the service center upon receipt of the error notification; and

a network connecting the networked device and the service center, wherein the network includes a firewall interposed the network device and the
30 service center.

26. The user service system of claim 25, wherein the diagnostic report transmitted to the customer service center through the firewall is in an electronic format.

5 27. The user service system of claim 26, wherein the electronic format of the diagnostic report includes at least one of Extensible Markup Language (XML), Hypertext Markup Language (HTML), and Comma Delimited Format.

10 28. The user service system of claim 26, wherein the transmission through the firewall uses at least one of Simple Mail Transfer Protocol (SMTP), and Hypertext Transfer Protocol (HTTP).

 29. A network device configured to transmit a diagnostic report comprising:
15 a means for generating an error notification;
 a means for producing a diagnostic report in response to an error notification; and
 a means for automatically transmitting the diagnostic report upon receipt of the error notification.

20 30. The network device of claim 29, wherein the means for producing the diagnostic report produces the diagnostic report in an electronic format.

25 31. The network device of claim 30, wherein the electronic format of the diagnostic report includes at least one of Extensible Markup Language (XML), Hypertext Markup Language (HTML), and Comma Delimited Format.

32. The network device of claim 31, wherein:
the diagnostic report is transmitted to a service center;
the service center programmatically reads the diagnostic report; and
a suggested course of action based on the diagnostic report is determined
5 by the service center.

33. The network device of claim 30, wherein the means for
automatically transmitting the diagnostic report to a service center includes
transmitting the diagnostic report through a network firewall to a location on an
10 external network.

34. The networked device of claim 33, wherein the means for
transmitting the diagnostic report includes at least one of Simple Mail Transfer
Protocol (SMTP), and Hypertext Transfer Protocol (HTTP) to transmit the
15 diagnostic report through the firewall.

35. The network device of claim 29, wherein the error notification
includes at least one of a user selection on an interface of the network device,
and an automatic signal generated by a machine error in the network device.
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36. A program storage device readable by a processor, tangibly
embodying a program of instructions executable by the processor to perform a
method of diagnosing network devices:
receiving an error notification on a network device;
25 creating a diagnostic report for the network device; and
automatically transmitting the diagnostic report through a firewall to a
service center.

37. The method on the program storage device of claim 36, wherein creating the diagnostic report includes generating the diagnostic report in an electronic format.

5 38. The method on the program storage device of claim 36, wherein generating the electronic format of the diagnostic report includes creating the diagnostic report in at least one of Extensible Markup Language (XML), Hypertext Markup Language (HTML), and Comma Delimited Format.

10 39. The method on the program storage device of claim 36, wherein the diagnostic report is transmitted over a network.

40. The method on the program storage device of claim 39, wherein transmitting the diagnostic report includes using at least one of Simple Mail
15 Transfer Protocol (SMTP), and Hypertext Transfer Protocol (HTTP).

41. The method on the program storage device of claim 39, wherein transmitting the diagnostic report is executed by a communication module in the
20 networked device.

42. The method on the program storage device of claim 36, wherein the diagnostic report is received by the customer service center in the electronic format and programmatically read at the customer service center.

25 43. The method on the program storage device of claim 42, further includes:

receiving the diagnostic report at the service center in the electronic format; and

reading the diagnostic report programmatically at the service center.

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44. The method on the program storage device of claim 43, including determining a suggested course of action based on the diagnostic report at the service center.

5 45. The method on the program storage device of claim 36, including communicating the suggested course of action from the service center to a customer representative.

10 46. The method on the program storage device of claim 36, wherein creating the diagnostic report includes reading a configuration status file of the network device.

15 47. The method on the program storage device of claim 36, wherein the error notification includes at least one of a user selection on an interface of the networked device, and an automatic signal generated by a machine error in the networked device.